District Data Brief

Changes in Wages and Occupational Mix of Fourth District Metro Areas Between 2019 and 2022

Joel Elvery

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Wage levels and the occupational mix of the US workforce changed rapidly during the COVID-19 pandemic, both regionally and nationally. This data brief describes changes in the wage distributions and occupational mixes of a dozen metro areas in the Fourth Federal Reserve District between 2019 and 2022, and compares them to changes in the same metrics in the nation as a whole. Since the start of the pandemic, occupations related to retail and food service have become less prevalent in District metro areas, while those linked to shipping and warehousing, and to business management, became more prevalent. The nation experienced similar changes. Overall, the more populous the District metro area, the more its occupation mix, wages, and wage growth resemble those of the nation.

Background

A challenge of comparing wages across metro areas is that wages reflect the local cost of living, which varies across metro areas. Given the degree of inflation between 2019 and 2022, differences in local inflation rates can have a large impact on wage growth, but metro-area-specific inflation estimates are available for few metro areas. Therefore, in this data brief I focus on nominal wages, meaning wages without any inflation adjustment.

The data in this brief are drawn from the Occupational Employment and Wage Statistics (OEWS) data for 2019 and 2022, which cover wage and salary workers at nonfarm employer establishments. These estimates are based on a large establishment survey which provides a detailed picture of the wages and employment of occupations down to the metro area.[1] I have condensed the occupation groups in the

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[1] In order to have a large sample, the OEWS combines the responses for three years to produce estimates. The OEWS introduced a new methodology with the 2021 data to better capture wages and employment at a specific

OEWS from 22 to 13 by combining groups with small employment levels and similar skill requirements, wages, and (where possible) employment trends (see Appendix for additional details).

This brief covers metro areas that overlap with the Fourth Federal Reserve District and have total employment of at least 100,000. I will refer to these as "the District metro areas" and divide them by employment levels into large, medium, and small. Cincinnati, Cleveland, Columbus, and Pittsburgh are large; Akron, Dayton, Lexington, and Toledo are mid-sized; and Canton, Erie, Huntington, and Youngstown are small.[2] I group them by size because, relative to smaller metro areas, large metro areas tend to have higher wages and more diversified economies, with larger concentrations of financial and professional services.

The average hourly wages and employment levels of these metro areas are listed in Table 1, along with the metro area abbreviations used in the graphs in this brief.

Table 1. Changes in Average Wage and Employment in District Metro Areas and the United States from 2019 to 2022

| Full name | Short name | Abbrev. | 2022 Average Hourly Wage | | 2022 Employment | |
			Wage ($)	Change from 2019 ($)	Level (1,000s)	Change from 2019 (percent)
Akron, OH	Akron	AKR	27.02	3.34	313	-3.5
Canton-Massillon, OH	Canton	CAN	23.98	2.84	161	-3.6
Cincinnati, OH-KY-IN	Cincinnati	CNC	28.23	3.91	1,061	-0.3
Cleveland-Elyria, OH	Cleveland	CLE	28.62	3.76	988	-3.6
Columbus, OH	Columbus	COL	28.75	3.83	1,061	1.5
Dayton, OH	Dayton	DAY	27.52	3.03	363	-3.0
Erie, PA	Erie	ERI	23.37	2.96	117	-4.5
Huntington-Ashland, WV-KY-OH	Huntington	HUN	23.32	2.66	128	-1.4
Lexington-Fayette, KY	Lexington	LEX	25.56	3.98	268	0.0
Pittsburgh, PA	Pittsburgh	PGH	27.90	3.33	1,058	-6.3
Toledo, OH	Toledo	TOL	26.00	3.43	284	-4.5
Youngstown-Warren-Boardman, OH-PA	Youngstown	YNG	22.73	2.60	200	-4.5
United States of America	United States	US	29.76	4.19	147,900	0.7

Sources: Bureau of Labor Statistics and author's calculations

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point in time (Dey, Piccone, and Miller 2019). The 2019 data and the 2022 data in this data brief were estimated with the new methodology. The 2019 data are available at *https://www.bls.gov/oes/oes-mb3-methods.htm* and the 2022 data are available at *https://www.bls.gov/oes/tables.htm*. In each year, the estimates cover the month of May.
[2] While the city of Huntington, WV is not in the Fourth Federal Reserve District, a large portion of the Huntington-Ashland-Ironton, WV-OH-KY MSA is located in eastern Kentucky and southern Ohio.

Occupational Mix

The COVID-19 pandemic led to dramatic changes in both the types of goods and services produced and how they were produced. These changes are reflected in the employment of occupation groups (Table 2), with categories related to in-person services, building maintenance, and retail trade shrinking, and transportation and professional occupation groups growing. For example, while overall US employment grew 0.7 percent between 2019 and 2022, the Food Preparation and Serving group and Sales and Related group saw large employment declines (7 percent and 8 percent, respectively). The shift to online shopping contributed to the 8 percent increase in the employment of the Transportation and Material Moving group. The Management, Business, and Financial group grew 17 percent.

Table 2. Changes in US Employment, Employment Share, and Average Hourly Wage of Occupation Groups from 2019 to 2022

Occupation group	2022 Employment		2022 Employment Share		2022 Average Hourly Wage	
	Level (1,000s)	Change from 2019 (percent)	Percent	Change from 2019 (p.p.)	Wage ($)	Change from 2019 ($)
All occupations	147.9	0.7	100	0	29.76	4.19
Management, Business, and Financial*	19.5	17.2	13.2	1.9	52.34	5.17
Office and Administrative Support	18.7	-3.2	12.6	-0.5	21.90	2.35
Transportation and Material Moving	13.6	8.3	9.2	0.7	21.12	2.99
Sales and Related	13.2	-8.3	8.9	-0.9	24.22	3.80
Food Preparation and Serving	12.5	-7.1	8.5	-0.7	15.45	2.64
Construction, Extraction, Installation, Repair, and Farming*	12.4	0.3	8.4	0.0	27.09	2.59
Legal, Computer, Math, Engineering, and Science*	10.0	6.1	6.8	0.3	49.80	6.02
Healthcare Practitioners and Technical	9.0	3.6	6.1	0.2	46.52	5.21
Production	8.7	-4.2	5.9	-0.3	21.81	2.54
Educational Instruction and Library	8.5	-4.1	5.7	-0.3	30.41	2.65
Other Service*	7.8	-0.1	5.3	0.0	29.07	4.30
Personal Care and Personal, Building, and Grounds Service*	7.2	-7.0	4.8	-0.4	17.32	2.56
Healthcare Support	6.8	2.3	4.6	0.1	17.10	2.50

* These occupation groups are aggregated to include similar types of work. See the Appendix for more detail. Sources: Bureau of Labor Statistics and author's calculations

These national changes are, to a large degree, reflected in the changes in District metro areas (Figure 1). As in the nation, the Management, Business, and Financial group had the largest increase in employment share and the Transportation and Material Moving group had the next largest increase in employment share in most District metro areas. The exceptions are Columbus, Huntington, and Lexington.

The employment shares of the Office and Administrative Support and Sales and Related groups declined in all 12 metro areas, and the share of the Food Preparation and Serving group declined in all but one of these metro areas (Huntington).

Figure 1. Change in Employment Share by Occupation Group, District Metro Areas and the United States

Change in share of employment between 2019 and 2022

◆ Metro   • US
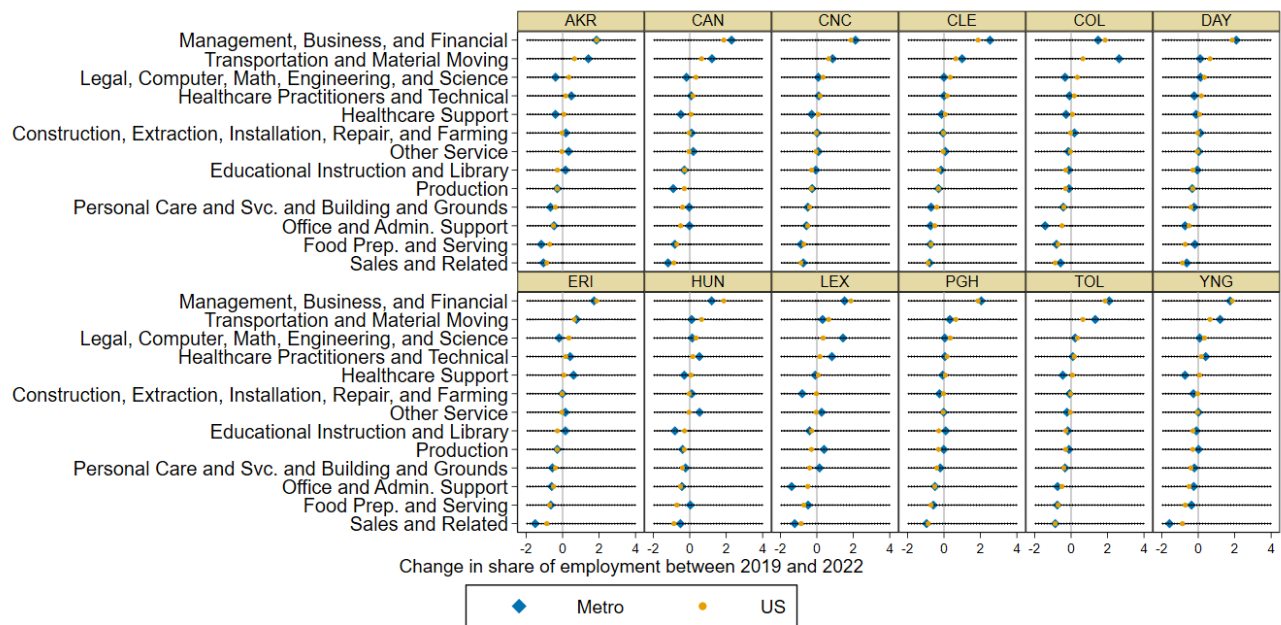
Sources: Bureau of Labor Statistics and author's calculations

In some cases, the change in a group's employment share in the metro area differed notably from the group's change nationwide. For example, in Akron, Columbus, and Toledo, the increase in the employment share of the Transportation and Material Moving group was more than double the group's national increase. While the Healthcare Support group's employment share rose slightly in the nation, this group's share declined in all of the District metro areas except Erie.

Figure 2 shows each metro area's occupation mix in 2022, with groups sorted by share of US employment. The differences between the occupation mix of a metro area and the nation sometimes reflect economic specialization. Manufacturing is a specialty of the economies of most of the District metro areas, which leads them to have a higher share of Production occupation group employment than the nation as a whole. Healthcare is another specialty of District metro areas; hence, the Healthcare

Practitioners and Technical group has a higher employment share in each District metro than in the nation.

A high share of Columbus's employment is in the Transportation and Material Moving group—12.3 percent—compared to 9.2 percent in the nation.

There are some distinct differences in occupation mix across District metro areas. For example, the Management, Business, and Financial group and the Legal, Computer, Math, Engineering, and Science group are a smaller share of employment in the small District metro areas (Canton, Erie, Huntington, and Youngstown) than in the other District metro areas, or in the nation. In fact, these two white-collar occupation groups are less prevalent in the small District metro areas than in the majority of other metro areas of similar size.[3]

Figure 2. Percent of Employment by Occupation Group, District Metro Areas and the United States
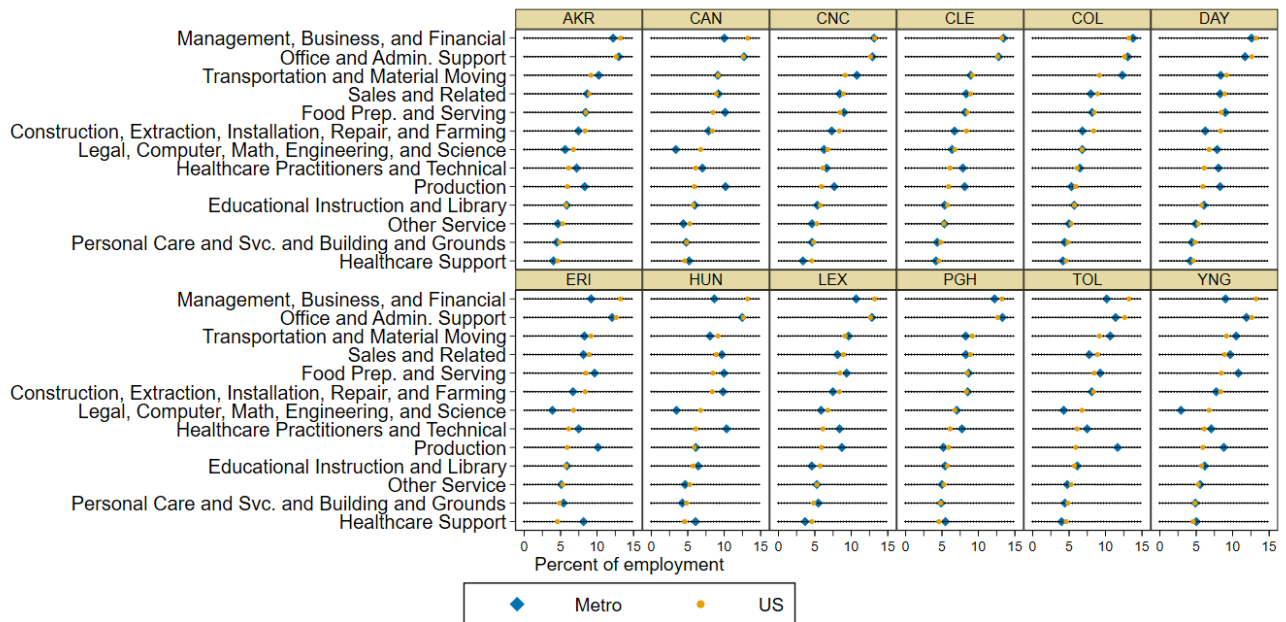
Sources: Bureau of Labor Statistics and author's calculations

Wages of Occupation Groups

Now let's turn our attention to how much particular kinds of work pay.

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[3] For each of these two occupation groups, three of the small District metros have shares in the first quartile of metros with 2022 employment between 100,000 and 200,000, and one of the metros has a share in the second quartile.

Nationally, the occupation groups with the highest average hourly wages are Management, Business, and Financial ($52.34); Legal, Computer, Math, Engineering, and Science ($49.80); and Healthcare Practitioners and Technical ($46.52) (Figure 3). These are also the highest wage occupation groups in District metro areas. However, in District metro areas, the average wage of each of these groups is below the national average, with the differences largest in the small metro areas.

Figure 3. 2022 Average Hourly Wage by Occupation Group, District Metro Areas and the United States

Sources: Bureau of Labor Statistics and author's calculations

Aside from those three high wage occupation groups and the Other Service group, the average wage of an occupation group in the large District metro areas is close to the national average. On the other hand, nearly all occupation groups in the small District metro areas have average wages below the groups' national average wages. This lag in wages is typical of the nation's small metro areas. The occupation group wages of the mid-sized District metro areas sit between those of the large and small District metro areas.

Figure 4 shows the change in occupation groups' wages between 2019 and 2022. District metro areas had uneven changes in occupation groups' average wages. One way to summarize these changes is to count how many of the 13 occupation groups had increases in average wages of at least $2.50 per hour—the higher the count, the larger the increases in average wages.[4]

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[4] $2.50 has no special significance—it just helps convey the differences in hourly wage changes across metros.

The number of occupation groups meeting this threshold include:

- 12 in the nation
- 11 in Lexington and Toledo
- 10 in Cincinnati, Cleveland, and Columbus
- 8 in Akron and Pittsburgh
- 7 or fewer in the remaining metro areas

In metro areas where relatively few occupation groups met the $2.50 increase threshold, high wage occupation groups tended to have smaller increases in average wages than in the nation as a whole. For example, the average wage of the Management, Business, and Financial occupation group rose by $5.17 in the nation, and by less than half of that in 7 of the 12 metro areas.

Figure 4. Dollar Change in Average Hourly Wage from 2019 to 2022 by Occupation Group (nominal $s), District Metro Areas and the United States
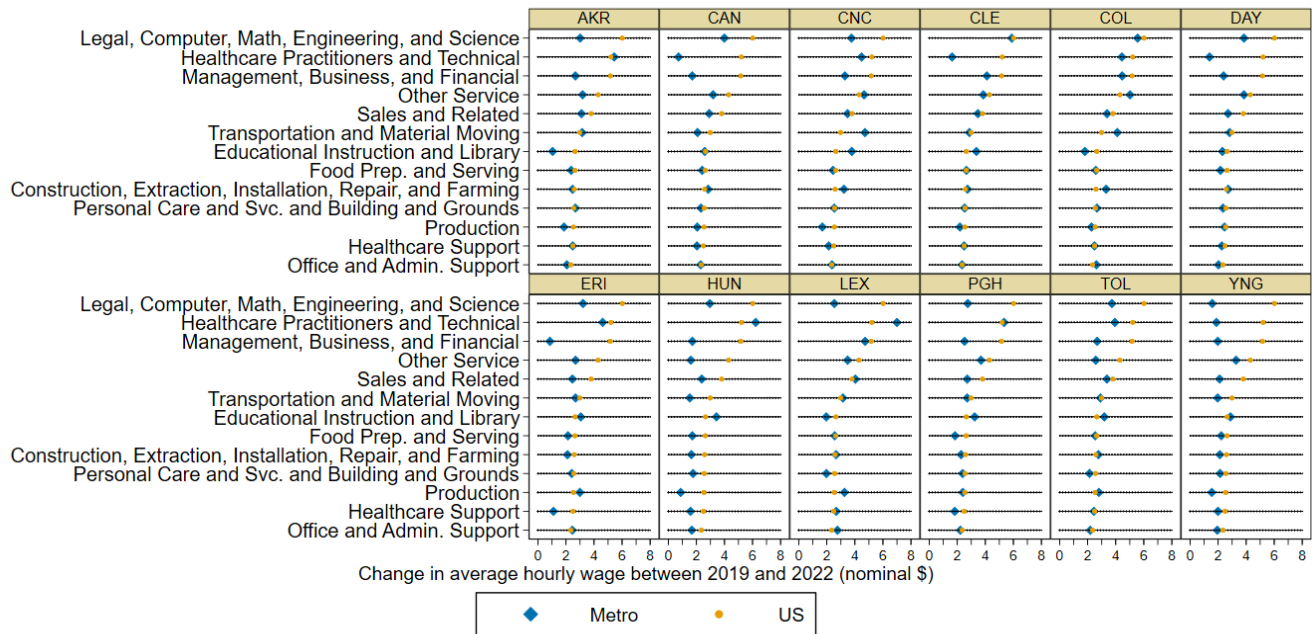
Sources: Bureau of Labor Statistics and author's calculations
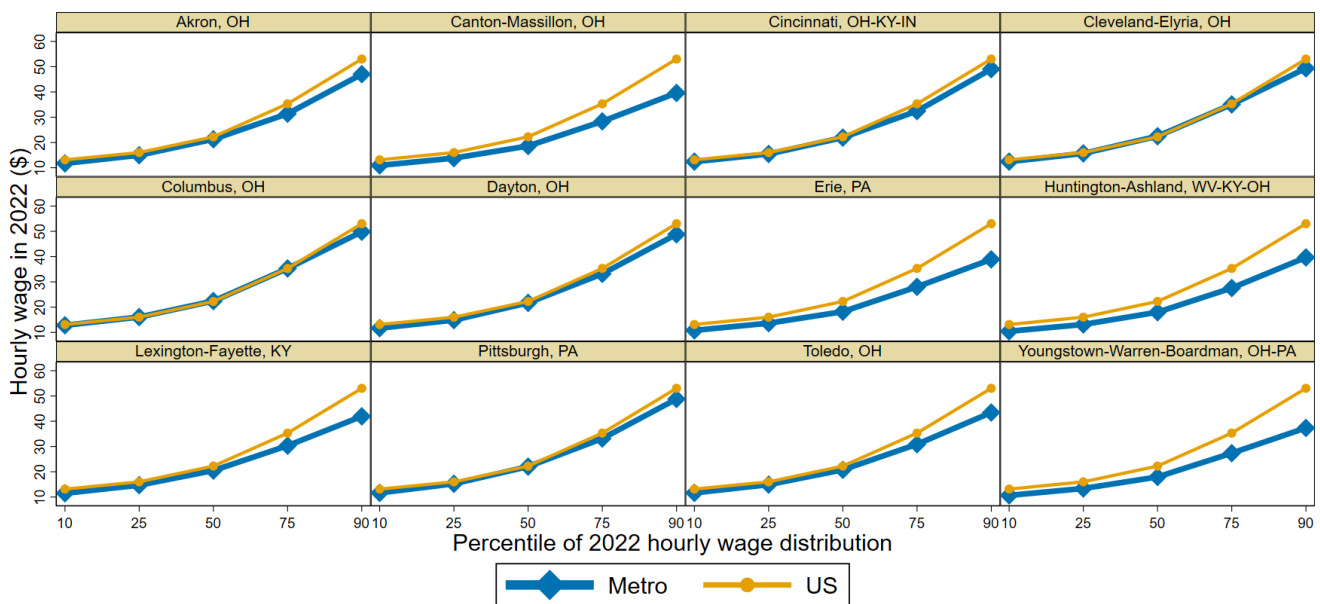
Wage Distributions

Next, we look at District metro areas' overall wage distributions, which are the aggregate effects of all the differences in occupation mix and occupation wages discussed above.

Figure 5 compares the wage distributions and wage levels of the District metro areas to that of the nation at five percentiles (10th, 25th, 50th, 75th, and 90th). A percentile of a wage distribution is the wage that is

above the wage of a certain percent of workers. For example, the 25th percentile wage in the nation in 2022 is $16.03, so 25 percent of US workers had a wage below $16.03.

In each District metro area, the difference between the metro area's hourly wages and the nation's wage is larger at higher percentiles. For example, the gap between the 75th percentile wages of Lexington and the nation is more than double the gap between their 50th percentile wages ($4.99 vs. $1.76). At each of the five percentiles, Cleveland and Columbus have the highest wages among the District metros. These two metro areas' wages are no more than 70 cents below the nation's wages for all the percentiles except the 90th percentile, where the gap is over $3. The small metro areas have notably lower wages than the other District metros. All four small metro areas have 10th percentile wages below $11.00 and 90th percentile wages below $40.00, compared to at least $11.51 and $41.96 for the same percentiles in medium metros and $11.65 and $48.80 in large metros.

Figure 5. Percentiles of 2022 Wage Distribution, District Metro Areas and the United States

In all but one District metro area, wage inequality grew less between 2019 and 2022 in the metro area than in the nation.[5] Figure 6 shows that the amount of wage growth was more equal across percentiles in District metro areas than in the nation. For example, nationally the 25th percentile wage rose by $2.67 and the 90th percentile wage rose by $7.73, while the corresponding increases in Youngstown were $2.66 and $3.21. Huntington, Lexington, and Toledo stand out from the other District metro areas because their 90th

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[5] This statement is based on a common measure of wage inequality, the 90-10 differential.

percentile wages rose much more than their wages at other percentiles. In fact, Toledo was the one District metro area where wage inequality grew more than it did in the nation between 2019 and 2022.

Figure 6. Dollar Change from 2019 to 2022 in Percentiles of Wage Distribution (Nominal $s), District Metro Areas and the United States
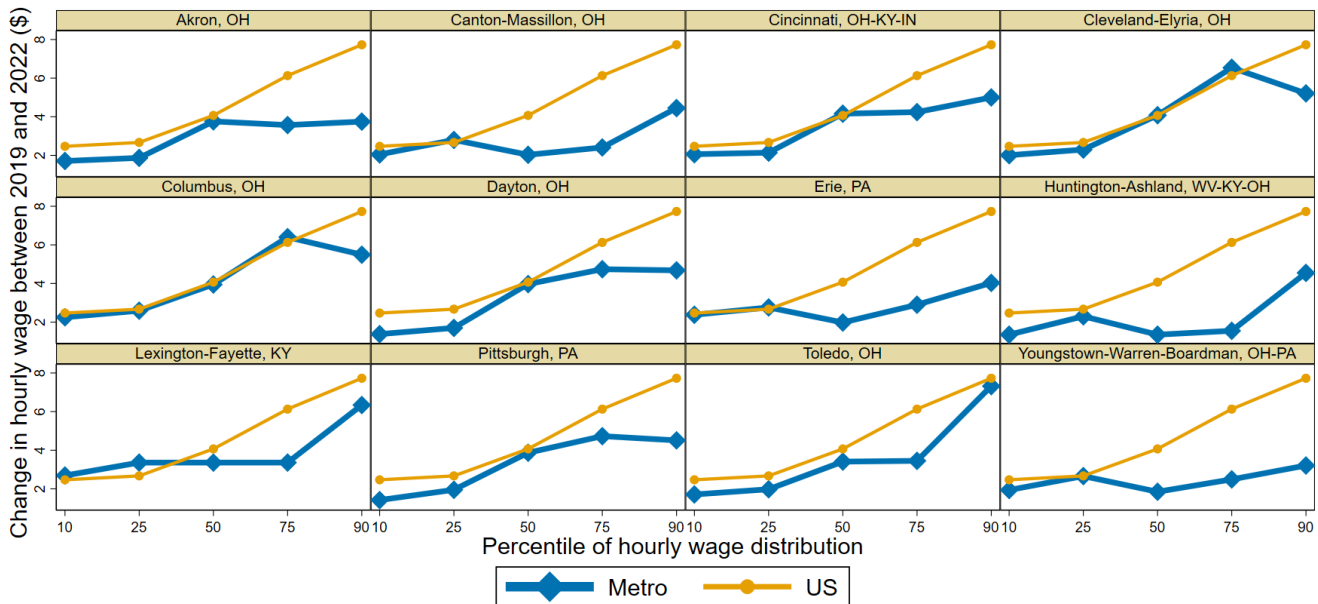
Sources: Bureau of Labor Statistics and author's calculations

Summary

This review uncovered patterns around occupational mixes and wage distributions within District metro areas that mirror both national trends and departures from them that reflect the Fourth District's unique economic makeup.

Overall, changes in occupational mix spurred by the COVID-19 pandemic—such as the reduction in Food Serving and Preparation employment and the increase in Transportation and Material Moving employment—were similar in District metro areas and the nation.

The occupational mixes and wages of District metro areas vary with the total employment in those metros. Large metro areas (Cincinnati, Cleveland, Columbus, and Pittsburgh) have wage distributions and occupational mixes that are similar to the nation as a whole, except that these metro areas have lower average wages for a few high-wage professional categories.

The small metro areas (Canton, Erie, Huntington, and Youngstown) have lower wages than the nation for most occupation groups and a smaller share of their employment is in high-wage professional occupation groups. The mid-sized metro areas (Akron, Dayton, Lexington, and Toledo) fall between the two other

size classes, with wages similar to the nation's in the bottom half of their wage distributions and lower than the nation's in the top quarter of their wage distributions. The Production, Healthcare Support, and the Healthcare Practitioners and Technical occupation groups are more prevalent in the small and mid-sized District metro areas than in the nation as a whole.

The Production category, in particular, is more prevalent in District metro areas than in the nation as a whole, reflecting the importance of manufacturing in the Fourth District economy.

Appendix

Most of the occupation group definitions used in this data brief are major occupation groups that are defined based on the 2010 Standard Occupation Classification system. However, I combined a number of small major occupation groups with other major occupation groups (Table A1). The choice of which occupation groups to combine is based on similarity of the typical education required of people in the occupation groups and similarity in employment share, wages, and trends in both. The average wage of each of the aggregated groups is the employment-weighted average of the constituent occupation groups' average wages.

Table A1. Combined Occupation Groups

Occupation groups
Construction, Extraction, Installation, Repair, and Farming
Construction and Extraction
Farming, Fishing, and Forestry
Installation, Maintenance, and Repair
Legal, Computer, Math, Engineering, and Science
Architecture and Engineering
Computer and Mathematical
Legal
Life, Physical, and Social Science
Management, Business, and Financial
Management
Business and Financial Operations
Other Service
Community and Social Service
Arts, Design, Entertainment, Sports, and Media
Protective Service
Personal Care and Personal, Building, and Grounds Service
Personal Care and Service
Building and Grounds Cleaning and Maintenance

References

Dey, Matthew, David S. Piccone Jr, and Stephen M. Miller. 2019. "Model-Based Estimates for the Occupational Employment Statistics Program." *Monthly Labor Review*, August. Bureau of Labor Statistics, US Department of Labor. *https://doi.org/10.21916/mlr.2019.19*.